## What Is Claimed Is:

1 .	1. A method of direct memory access control, comprising.
2	receiving a command to initiate data transfer between a first device and a
3	second device;
4	responsive to the command received, determining a channel capable of
5	facilitating the data transfer;
6	determining a mode indicating a manner in which to activate the channel;
7	and
8	enabling the data transfer to be performed using the channel and based on
9	the mode determined.
1	2. The method according to Claim 1, wherein the one of the first device and the
2	second device comprises a memory device.
1	3. The method according to Claim 1, further comprising:
2	receiving a signal indicating a last transfer associated with the data
3	transfer; and
4	in response, transmitting a signal acknowledging completion of the data
5	transfer.

I	4. The method according to Claim 1, wherein determining a mode indicating a
2	manner in which to activate the channel comprises:
3	selecting the mode from one of a group of operation modes comprising a
4	fixed length single burst mode, a chaining mode, an auto-rollback
5	mode, virtual channel mode, and a multiple-segment mode.
I	5. The method according to Claim 1, wherein determining a mode indicating a
2	manner in which to activate the channel comprises:
3	selecting the mode from one of a group of access modes comprising
4	READ and WRITE modes.
1	6. The method according to Claim 1, further comprising:
2	determining a base address representing a starting address of the data
3	transfer.
I	7. The method according to Claim 6, further comprising:
2	selecting a starting address of a subsequent data transfer to be the base
3	address.
1	8. The method according to Claim 6, further comprising:
2	selecting a starting address of a subsequent data transfer to be an address
3	that is continuous with an ending address of a previous data
4	transfer.

1	9. The method according to Claim 6, further comprising:
2	determining an ending address contiguous to the starting address; and
3	automatically rolling the ending address to the starting address when the
4	data transfer exceeds the ending address.
I ~	10. The method according to Claim 1, further comprising:
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2	determining a segment count indicator and a segment spacing indicator
3	from the operational characteristics, wherein the data transfer
4	comprises data transfer of a plurality of data segments.
i	11. The method according to Claim 10, further comprising:
2	determining a base address representing a starting address of a first data
3	segment;
4	selecting a starting address of a subsequent data segment to be an address
5	determined from the base address offset based on the segment
6	count indicator and the segment spacing indicator.
1	12. A method of selectably enabling a plurality of data transfer modes along one
2	or more channels, comprising:
3	loading predetermined configuration data from an external device, the
4	predetermined configuration data including the plurality of data
5	transfer modes and the channels facilitating the data transfer;
	receiving a command to initiate the data transfer between a source device

7	and a destination device;
8	responsive to the command received, selecting a corresponding channel
9	from the channels and a corresponding mode from the plurality of
10	data transfer modes; and
11	enabling data transfer between the source device and the destination
12	device based on the corresponding channel and the corresponding
13	mode.
I	13. The method according to Claim 12, wherein selecting a corresponding mode
2	from the plurality of data transfer modes comprises:
3	selecting the corresponding mode to be one from a group of operation
4	modes comprising a fixed length single burst mode, a chaining
5	mode, an auto-rollback mode, virtual channel mode, and a
6	multiple-segment mode.
1	14. The method according to Claim 12, wherein selecting a corresponding mode
2	from the plurality of data transfer modes comprises:
3	selecting the corresponding mode to be one from a group of access modes
4	comprising READ and WRITE modes.
.1	15. The method according to Claim 12, wherein one of the source device and the
2	destination device comprises a memory device.
1	16. The method according to Claim 12, wherein enabling data transfer between

2	the source device and the destination device based on the corresponding channel and the
3	corresponding mode comprises:
4	enabling the source device to read data from the destination device.
1	17. The method according to Claim 12, wherein enabling data transfer between
2	the source device and the destination device based on the corresponding channel and the
<b>3</b> .	corresponding mode comprises:
4	enabling the source device to write data to the destination device.
1	18. A method of controlling data transfer between a first device and a second
2	device, comprising:
3	receiving a command to initiate the data transfer;
4	extracting configuration data from the command to load a configuration
5	engine and to index operational characteristics associated with the
6	data transfer, the configuration engine being capable of storing the
7	operational characteristics;
8	selecting from the operational characteristics a channel facilitating the data
9	transfer between the first device and the second device, and an
10	operation mode associated with the data transfer;
11	receiving at least one signal indicating that the data transfer is ready to be
12	undertaken; and
13	enabling activation of the channel; and
14	enabling the data transfer using the operation mode selected.

I	19. The method according to Claim 18, further comprising:
2	receiving a signal indicating a last transfer associated with the data
3	transfer; and
4	in response, transmitting a signal acknowledging completion of the data
5	transfer.
1	20. The method according to Claim 18, wherein the second device is memory
2	device.
1	21. The method according to Claim 20, wherein receiving at least one signal
2	indicating that the data transfer is ready to be undertaken comprises:
3	receiving a request from the first device to READ data from the memory
4	device.
1	22. The method according to Claim 20, wherein receiving at least one signal
2	indicating that the data transfer is ready to be undertaken comprises:
3	receiving a request from the first device to WRITE data to the memory
4	device.
I	23. The method according to Claim 18, further comprising:
2	determining a base address representing a starting address of the data
<i>3</i> .	transfer.
,	24. The method according to Claim 23, wherein enabling the data transfer using

2	the operation mode selected comprises:
3	selecting a starting address of a subsequent data transfer to be the base
4	address.
1	25. The method according to Claim 23, wherein enabling the data transfer using
2	the operation mode selected comprises:
3	selecting a starting address of a subsequent data transfer to be an address
4	that is continuous with an ending address of a previous data
5	transfer.
1	26. The method according to Claim 23, wherein enabling the data transfer using
2	the operation mode selected comprises:
<b>3</b> .	determining an ending address contiguous to the starting address; and
4	automatically rolling the ending address to the starting address when the
5	data transfer exceeds the ending address.
1	27. The method according to Claim 18, further comprising:
2	determining a segment count indicator and a segment spacing indicator
3	from the operational characteristics, wherein the data transfer
4	comprises data transfer of a plurality of data segments.
1	28. The method according to Claim 27, wherein enabling the data transfer using
2	the operation mode selected comprises:
3	determining a base address representing a starting address of a first data

4	segment;
5	selecting a starting address of a subsequent data segment to be an address
6	determined from the base address offset based on the segment
7	count indicator and the segment spacing indicator.
1	29. The method according to Claim 18, wherein receiving at least one signal
2	indicating that the data transfer is ready to be undertaken comprises:
3	receiving a request from the first device to READ data from the second
4	device; and
5	receiving a request from the second device to WRITE data to the first
6	device.
1	30. The method according to Claim 29, wherein the operation mode comprises a
2	virtual channel data transfer mode, and wherein enabling the data transfer using the
3	operation mode selected comprises:
4	sending an acknowledge signal to each of the first device and the second
5	device; and
6	enabling the data transfer to be performed directly between the first device
7	and the second device.
1	31. A system, comprising:
2	a source device communicatively coupled to a destination device; and
3	coupled to the source and destination devices, means for selectively
4	enabling multiple channel data transfer modes between the source

5	device and the destination device,
6	wherein a data transfer mode is selected from a group of the multiple
7	channel data transfer modes comprising fixed length single burst
8	mode, a chaining mode, an auto-rollback mode, a virtual channel
9	mode, and a multiple-segment mode.
1	32. The system according to Claim 31, wherein the means for selectively
2	enabling multiple channel data transfer operation modes between the source device and
3	the destination device comprises:
4	bus interface unit means for buffering bus signals between the source and
5	destination devices, the bus interface unit means being coupled to
6	the source and destination devices;
7 .	coupled to the bus interface unit means, memory means for storing
8	configuration data representing the multiple channel data transfer
9	operation modes; and
0	coupled to the memory means, engine means for selecting from the
I	memory means a corresponding operation mode and access mode
2	for the data transfer.
Í	33. The system according to Claim 31, wherein the means for selectively
2	enabling multiple channel data transfer operation modes between the source device and
3	the destination device further comprises:
4	a processor coupled to a bus and interrupt controller, the bus and interrupt
5	controller being communicatively coupled to the bus interface unit

6	means; and
7	scheduler means coupled to the source and destination devices.
I	34. A video processing system for selectably enabling a plurality of data transfer
2	modes along one or more channels communicatively coupling together a first device and
3	a second device, comprising:
<b>4</b> .	the first device communicatively coupled to second device; and
5	a direct memory access controller controlling data transfer between the
6	first and second devices, the direct memory access controller
7	coupled to the first and second devices, wherein the direct memory
8	access controller includes a configuration storage element having:
9	a multiple segment indicator;
0	a base request indicator;
1	a base count indicator; and
2	mode indicator.
1	35. A computer program product for controlling data transfer between a first
2	device and a second device, the computer program product stored on a computer readable
3	medium, and adapted to perform operations of:
4	allowing receipt of a command to initiate the data transfer;
5	allowing configuration data to be extracted from the command to load a
6	configuration engine and to index operational characteristics
7	associated with the data transfer, the configuration engine being
8	capable of storing the operational characteristics;

9	enabling selection from the operational characteristics of a channel
10	facilitating the data transfer between the first device and the second
11	device, and an operation mode associated with the data transfer;
12	allowing receipt of at least one signal indicating that the data transfer is
13	ready to be undertaken; and
14	enabling activation of the channel; and
15	enabling the data transfer using the operation mode selected.
1	36. A computer program product for selectably enabling a plurality of data
2	transfer modes along one or more channels, the computer program product stored on a
3	computer readable medium, and adapted to perform operations of:
4	allowing predetermined configuration data to be loaded from an external
5	device, the predetermined configuration data including the
6	plurality of data transfer modes and the channels facilitating the
7	data transfer;
8	enabling receipt of a command to initiate the data transfer between a
9	source device and a destination device;
10	responsive to the command received, enabling selection of a
11	corresponding channel from the channels and a corresponding
12	mode from the plurality of data transfer modes; and
13	enabling data transfer between the source device and the destination
14	device based on the corresponding channel and the corresponding
15	mode.

1	37. A computer program product for direct memory access control, the computer
2	program product stored on a computer readable medium, and adapted to perform
3	operations of:
4	allowing receipt of a command to initiate data transfer between a first
5	device and a second device;
6	responsive to the command received, enabling determination to be made
7	of a channel capable of facilitating the data transfer;
8	enabling determination of a mode indicating a manner in which to activate
9	the channel; and
10	enabling the data transfer to be performed using the channel and based on
11	the mode determined.
,1	38. A method of controlling data transfer between a first device and a second
2	device, comprising:
3	allowing receipt of a command to initiate the data transfer;
4	enabling configuration data to be extracted from the command to load a
5	configuration engine and to index operational characteristics
6	associated with the data transfer, the configuration engine being
7	capable of storing the operational characteristics;
8 .	allowing a channel to be selected from the operational characteristics, the
9	channel facilitating the data transfer between the first device and
10	the second device, and an operation mode associated with the data
11	transfer;

12	allowing receipt of at least one signal indicating that the data transfer is
13	ready to be undertaken; and
14	enabling activation of the channel; and
15	enabling the data transfer using the operation mode selected.
1	39. The method according to Claim 38, further comprising:
2	allowing receipt of a signal indicating a last transfer associated with the
3	data transfer; and
4	in response, enabling transmission of a signal acknowledging completion
5	of the data transfer.